IN THE DRAWINGS

Applicant has amended Figure 34.

A clean replacement drawing sheet of Figure 34 is attached hereto as Appendix I.

REMARKS

This Amendment is in response to the Office Action mailed 12/20/2005. In the Office Action, (i) claims 25-31 and 43-51 were rejected under 35 USC 112, 2nd paragraph; and (ii) claims 25-31 and 40-51 were rejected under 35 USC 102(e).

Reexamination and reconsideration of this case is respectfully requested in view of the foregoing amendments and the following remarks.

Claims 25 and 27 have been amended by this response. Claims 1-24 and 32-39 were previously cancelled without prejudice. No claim has been cancelled. Claim 52 has been added by this response. Accordingly, claims 25-31 and 40-52 are currently pending in this application. Of the pending claims, claims 25, 40, and 46 are independent claims.

Applicant believes that no new matter has been added by this response

I) Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 25-31 and 43-51 were rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point our and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverses this rejection.

The office action particularly states

"(a) Claim 25, it is not clear what is the function and the configuration of the output multiplexer with respect to other elements.

Applicant has amended claim 25 to clarify the function and configuration of the output multiplexer and believes this rejection of independent claim 25 is now moot.

The Office Action further states" (b) Claims 27, 29, 43, and 46, it is not clear what is the function of the bus state keeper."

Paragraph [0376] of Applicant's published application explains "The address mappers 3302A-3302N generating the chip select signals 2716, selectively control which input data bus and output data bus are active for one selected cluster. In this manner, power consumption can be reduced because not all bit lines of the data buses for all the clusters need to change state. Their ***states can be kept by the bus state keepers*** 3312 and 3402. The use of the bus state keepers can be generalized to parallel buses between the same two functional blocks, each using a multiplexer and a register to ***maintain a stable stored state but for the one that is predetermined to change state*** as indicated by an address or a control signal." [Published Application 2002/0236896, para. No. 0376].

Applicant believes that the function of the bus state keepers is clear from a review of Applicant's specification and believes that this rejection of dependent claims 27, 29, 43, and 46 is now moot.

The Office Action further states" (c) Claims 50 and 51, it is not clear how the bus state keeper conserves power."

As previously disclosed, the bus state keepers maintain a stable stored state but for the one that is predetermined to change state. As explained in paragraph [0375] of Applicant's published application, "***Avoiding changes of state in buses can conserve considerable power when the buses have significant capacitive loading***. This is particularly true when there are many buses which have capacitive loading or a bus is wide having a high number of bit or signal lines. [] The number of signal lines in each bus, the length of routing, and the frequency of changes of a signal on the signal lines affects the amount of power consumption in the reconfigurable memory. While the length of the signal lines is somewhat fixed by the design and layout of the reconfigurable global buffer memory, the number of signal lines changing state can functionally be less in order to conserve power. That is, ***if charges stored on the capacitance of all the signal lines are not constantly dissipated actively to ground or if charges are not constantly added actively to the dissipated capacitance of all the signal lines, power can be conserved within an integrated circuit.***" (emphasis added) [Published Application 2002/0236896, para. No. 0375].

Applicant believes that it is clear as to how the bus state keepers conserve power from a review of Applicant's specification and believes that this rejection of dependent claims 50-51 is now moot.

Claims 28, 30-31, 44-45, and 47-51 were not specifically mentioned by the Office Action as having indefinite claim language. It is believed these claims were rejected for being dependent upon the rejected base claims as discussed above. Applicant believes that the this rejection of claims is now moot

as to these dependent claims as well such that they are also in condition for allowance.

For the foregoing reasons, Applicant respectfully request the withdrawal of the 35 U.S.C. 112, second paragraph claim rejection of claims 25-31 and 43-51.

II) Claim Rejections Under 35 U.S.C. § 102(e)

In section 5 of the Office Action, claims 25-31 and 40-51 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,968,419 issued to Thomas J. Holman ("Holman"). Applicant respectfully traverses this rejection.

Initially it is noted that the Office Action only specifically addressed the elements of independent claim 25 stating "the memory claims 40-45 and the memory claims 46-51 are equivalently rejected based on the same reasoning."

The Office Action alleges that "Holman teaches the invention as claimed in claim 25 including a memory in an IC to conserve power comprising:

(a) plurality of memory clusters (fig. 3), each of the plurality of memory clusters including one or more memory blocks to store data (312), and an output multiplexer (310; col. 8, line 42),

(b) a memory controller (304) to receive addresses to the memory and control the flow of data into and out the memory,

(c) a plurality of buses and control lines coupled between the plurality of memory clusters and the memory controller to

propagate address and data there-between and to control the activity of the plurality of memory clusters (323; col. 5, line 6)."

The Office Action seems to allege that Holman's element 310 discloses Applicant's output multiplexer. However, Holman's element 310 is a "memory module controller". The office action cites a reference to a "time multiplexed protocol" in Holman to support its allegation. However, the "time multiplexed protocol" is typically a method as to how a plurality of memory modules 306, 308 share the system memory bus 323. Holman's memory devices 312, 313, 314, 315 are not separately multiplexed onto the system memory bus. Each of Holman's memory devices 312, 313, 314, 315 has one or more bits which are concurrently driven onto the system bus.

Thus, Applicant respectfully submits that Holman's "memory module controller" does not disclose Applicant's "output multiplexer" as recited in Independent claim 25. For the same reasons, Applicant respectfully submits that Holman's "memory module controller" does not disclose Applicant's "data bus interface logic" as recited in Independent claim 40.

Regarding independent claim 46, the Office Action seems to be alleging that Holman's "request handling logic 804" discloses Applicant's "bus state keepers". Applicant respectfully disagrees.

Holman doesn't disclose it's request handling logic 804 as saving the state of any bus nor that it has the structure of Applicant's "bus state keepers". To construe Holman's request handling logic 804 as Applicant's "bus state keepers" improperly ignores the ordinary meaning of the terms found in the claims

and is inconsistent with the meaning of the terms found in the written description of Applicant's disclosure.

Thus, Applicant respectfully submits that Holman's "request handling logic" does not disclose Applicant's "bus state keepers" as recited in Independent claim 46.

Moreover, the elements depicted in Holman's Figure 3 are not in an integrated circuit. They are elements that are found on one or more printed circuit boards.

Holman's "System memory bus 323 may be placed on a ***printed circuit board (PCB)*** that includes system memory controller 304 and interconnection slots for modules 306 and 308 as shown in FIG. 3." [Holman, Col. 5, lines 34-37]. Holman's "Memory modules 306 and 308 may be SIMMs, DIMMs, RIMM modules, or any other type of memory modules." [Holman, Col. 4, lines 36-37] A memory module is a "***printed circuit board*** with memory chips that plugs into the motherboard or some other type of backplane." (emphasis added) [See definition of "Memory Module" on page 559 in "The Computer Desktop Encyclopedia", Second Edition, Copyright 1999, attached hereto as Appendix II. See also the definition of "SIMM" on pages 816-817 thereof].

"To anticipate a claim, the reference must teach every element of the claim." [MPEP 2131, Rev. 3, August 2005, Pg. 2100-76].

For the foregoing reasons, Applicant respectfully submits that Holman does not anticipate Applicant's invention as claimed in independent claims 25, 40, and 46.

Rejected claims 26-31, 41-45, and 47-51 respectively depend directly or indirectly from independent claims 25, 40, and 46.

Applicant believes it has placed independent claims 25, 40, and 46 in condition for allowance such that dependent claims depending there-from with added limitations are also in condition for allowance.

Thus, Applicant respectfully requests the withdrawal of the 35 U.S.C. § 102(e) rejection of claims 25-31 and 40-51 over Holman.

III) Claim Amendments

Claims 25 and 27 have been amended.

As discussed previously, Applicant has amended claim 25 to clarify the function and configuration of the output multiplexer and not for reasons related to patentability.

In accordance with the amendment of claim 25, Applicant has amended dependent claim 27.

IV) New Claims

Applicant has added new claim 52. New claim 52 depends from independent claim 25. Applicant believes it has placed independent claim 25 in condition for allowance such that dependent claims depending there-from with further limitations are also in condition for allowance. Applicant respectfully submits that new claim 25 is in condition for allowance.

V) Specification Amendments

Applicant has amended paragraph [0377] of the specification adding a sentence at the end to clarify that "the plurality of tristate bus drivers 3419 form an output multiplexer in the collar logic 2713 of each memory cluster 2710" in one embodiment of the invention.

This amendment is supported by the text of paragraph [0377] as filed. "The tristate bus drivers 3419A-3419D receive data output from the output latches of the memory blocks on the DATA OUTn buses 3719n. One of the tristate bus drivers 3419A-3419D selectively drives the cluster output data bus CliDBOUT 2719m. The tristate bus drivers 3419A-3419D are each respectively enabled by a separate output enable signal OENn respectively labeled OENA, OENB, OENC, and OEND in FIG. 34." [Applicant's specification, paragraph [0377].

It is believed that no new matter is added by this amendment to the specification.

VI) Drawing Amendment

Applicant has amended the formal drawing of Figure 34 to be consistent with the as-filed informal drawings.

The formal drawing of Figure 34 was missing reference number 3410 and the word "CONTROLLER" from the block now properly labeled 3410.

Attached as Appendix II is one sheet of a clean drawing of amended Figure 34.

As this amendment is supported by the as-filed informal drawings, it is believed that no new matter is added by this amendment to the drawing of Figure 34.

Applicant respectfully requests acceptance of this amendment to the formal drawing of Figure 34 by the Examiner.

CONCLUSION

In view of the foregoing it is respectfully submitted that the claims are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance of the claims at an early date is solicited.

The Examiner is invited to contact Applicant's undersigned counsel by telephone at (714) 557-3800 to expedite the prosecution of this case should there be any unresolved matters remaining. To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. If any other petition is necessary for consideration of this paper, it is hereby so petitioned. Please charge any shortage in fees in connection with the filing of this paper, including extension of time fees, to Deposit Account 02-2666 and please credit any excess fees to such deposit account.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: June 19, 2006

William E. Alford
Reg. No. 37,764

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450 *on:* June 19, 2006.

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technicians, countless books have been written on this problem that never should have existed in the first place. There have even been two-day courses on the subject. Subsequent versions of DOS, and especially Windows, added the necessary memory management functions to eliminate this frustration with most PCs. However, machines with older peripherals and drivers may still require manual tweaking to get everything working together, and this is still sometimes required to solve some problems in Windows 3.1 and 95/98. See *virtual memory, garbage collection, memory protection, EMS, EMM* and *DOS memory manager*. See *PC memory map* for an illustration of memory regions in a PC.

memory manager

Software that manages memory in a computer. See *memory management.*

memory map

The location of instructions and data in memory. See *PC memory map* for a digaram of the PC's upper memory area.

memory mapped I/O

A peripheral device that assigns specific memory locations to input and output. For example, in a memory mapped display, each pixel or text character derives its data from a specific memory byte or bytes. The instant this memory is updated by software, the screen is displaying the new data.

memory module

A printed circuit board with memory chips that plugs into the motherboard or some other type of backplane. See *SIMM* and *DIMM*.

memory protection

A technique that prohibits one program from accidentally clobbering another active program. Using various different techniques, a protective boundary is created around the program, and instructions within the program are prohibited from referencing data outside of that boundary.

When a program does go outside of its boundary, DOS, Windows 3.x and earlier personal computer operating systems simply lock up (crash, bomb, abend, etc.). Operating systems such as UNIX, OS/2 and Windows NT are more robust and generally allow the errant program to be closed without affecting the remaining active programs.

memory resident

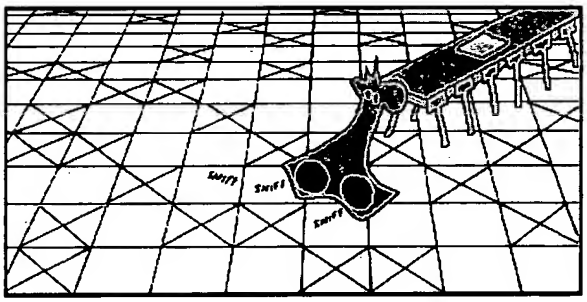
A program that remains in memory at all times. See *TSR.*

memory sniffing

Coined by Data General, a diagnostic routine that tests memory during normal processing. The processor uses cycle stealing techniques that allow it to test memory during unused machine cycles. A memory bank can be "sniffed" every few minutes.

memory typewriter

A typewriter that holds a few pages of text in its memory and provides limited word processing functions. With a display screen of only one or two lines, editing is tedious.



Memory Sniffing

Sniffing a memory bank may not look exactly like this, but it does the job of testing memory while the computer is running the daily work.

MEMS

(MicroElectroMechanical Systems)
Semiconductor chips that have a top layer of mechanical devices such as mirrors or fluid sensors. They are used as pressure sensors, chemical sensors and light reflectors and switches. MEMS devices have been in the research labs since the 1980s and began to materialize as commercial products in the mid 1990s. See *DLP.*

menu

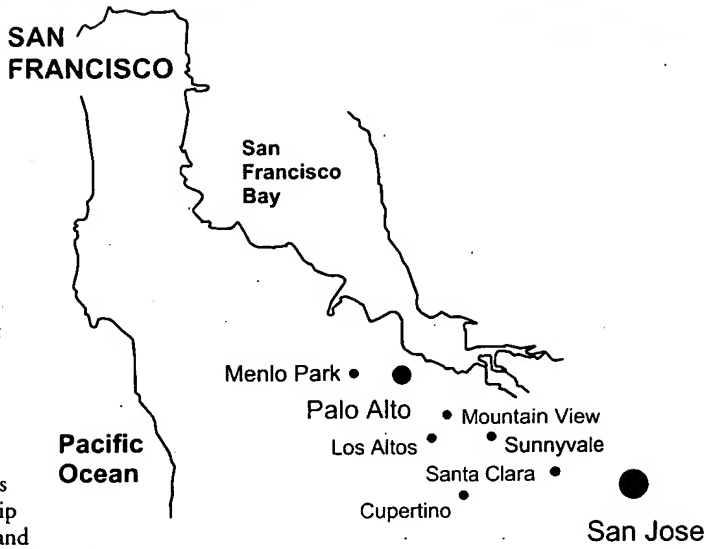
An on-screen list of available functions, or operations, that can be performed currently. Depending on the type of menu, selection is accomplished by (1) highlighting the menu option with a mouse and

silicon nitride

(Si_3N_4) A silicon compound capable of holding a static electric charge and used as a gate element on some MOS transistors.

Silicon Valley

An area south of San Francisco, California that is noted for its huge number of computer companies. Thousands of hardware, software and related firms have their headquarters in Silicon Valley, making it the largest confluence of high tech in the U.S.



SIM

(Society for Information Management, Chicago, IL, www.simnet.org) Founded in 1968 as the Society for MIS, it is a membership organization comprised of corporate and division heads of IT organizations. SIM provides a forum for exchange of technical information and offers educational and research programs, competitions and awards.

SimCity 2000

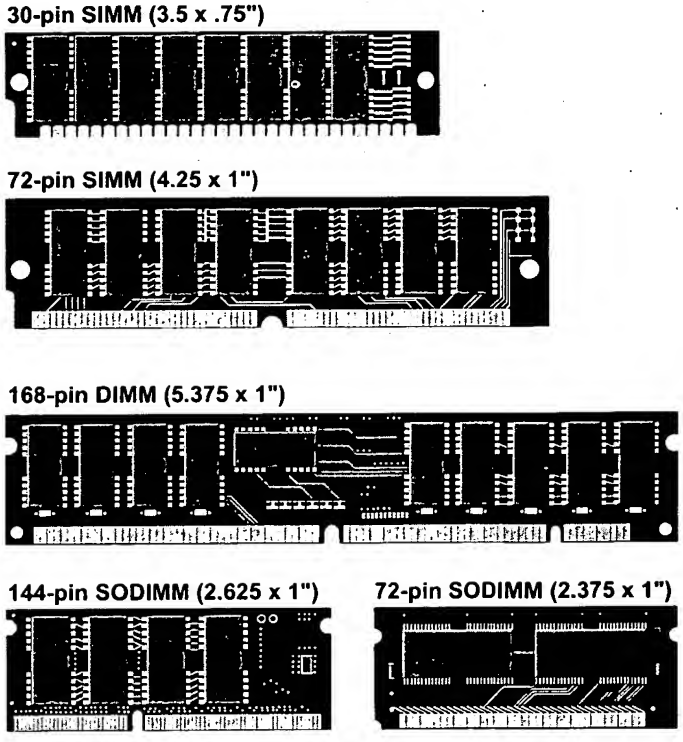
A popular educational game for kids and adults for DOS and Macintosh from Maxis, Inc., Walnut Creek, CA, (www.maxis.com). The purpose is to create a city that prospers due to its well-designed infrastructure. After installing a power plant, electric lines, highways and setting up residential and commercial zones, the people automatically come and build up the city. You can influence the politics, taxation, even determine how much natural disaster befalls the citizens. It's quite amazing!

SIMD

(Single Instruction stream Multiple Data stream) A computer architecture that performs one operation on multiple sets of data, for example, an array processor. One computer or processor is used for the control logic and the remaining processors are used as slaves, each executing the same instruction. Contrast with *MIMD*.

SIMM

(Single In-line Memory Module) A narrow printed circuit board that holds memory chips. It plugs into a SIMM socket on the motherboard or



SIMMs and DIMMs

SIMMs and DIMMs are widely used in desktop computers and servers. The SODIMMs (Small Outline DIMMs) are used in laptops, while 30-pin SIMMs are typically found in older desktop computers.

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singlemode

An optical

memory board. The first SIMM format that became popular on personal computers was 3.5" long and used a 30-pin connector. A larger 4.25" format uses 72-pins and contains from one to 64 megabytes of RAM.

SIMMs (Single In-line) evolved into DIMMs (Dual In-line) packages. The difference is in the way the pins are wired. SIMM pins are the same circuit path on both sides of the edge connector. DIMM pins are different on each side, providing double the circuit paths. DIMM modules can be added one at a time on a Pentium motherboard, whereas SIMMs are generally used in pairs and in groups of four on older computers.

PCs use either nine-bit memory (eight bits and a parity bit) or eight-bit memory without parity. Macintoshes use eight-bit memory without parity.

Upgrading Memory - RTFM!

To upgrade to more memory, read your PC's documentation manual. Although it's obvious that you have to put SIMMs in SIMM slots and DIMMs in DIMM slots, the memory chips must also be the same type (EDO, SDRAM, etc.) and the same or faster speed than your existing memory. In addition, your manual should show you all possible combinations of different-sized modules that can be used in the available memory slots.

simplex

One way transmission. Contrast with *half-duplex* and *full-duplex*.

SIMSCRIPT

A programming language used for discrete simulations.

SIMULA

A simulation language originating in the late 1960s that was used to model the behavior of complex systems. SIMULA was the original object-oriented language.

simulation

(1) The mathematical representation of the interaction of real-world objects. See *scientific application*.

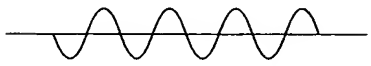
(2) The execution of a machine language program designed to run in a foreign computer.

sine

In a right triangle, the ratio of the side opposite an acute angle (less than 90 degrees) and the hypotenuse. The cosine is the ratio between the adjacent side and the hypotenuse. These angular functions are used to compute circular movements.

sine wave

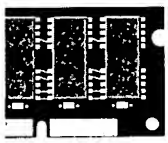
A uniform wave that is generated by a single frequency.



A Sine Wave

single board computer

A printed circuit board that contains a complete computer, including processor, memory, I/O and clock.



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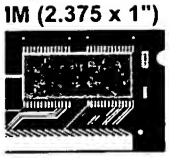

single density disk

The first-generation floppy disk.

single-ended configuration

Electrical signal paths that use a common ground, which are more susceptible to noise than *differential configuration*.

single-hub cartridge

A tape cartridge that uses only one spindle and reel. The tape is pulled out of the cartridge and attached to a takeup reel inside the drive. Contrast with *cassette*.

single inheritance

In object-oriented programming, a class that has no more than one parent. Contrast with *multiple inheritance*.

singlemode fiber

An optical fiber with a core diameter of less than 10 microns, used for high-speed transmission and